

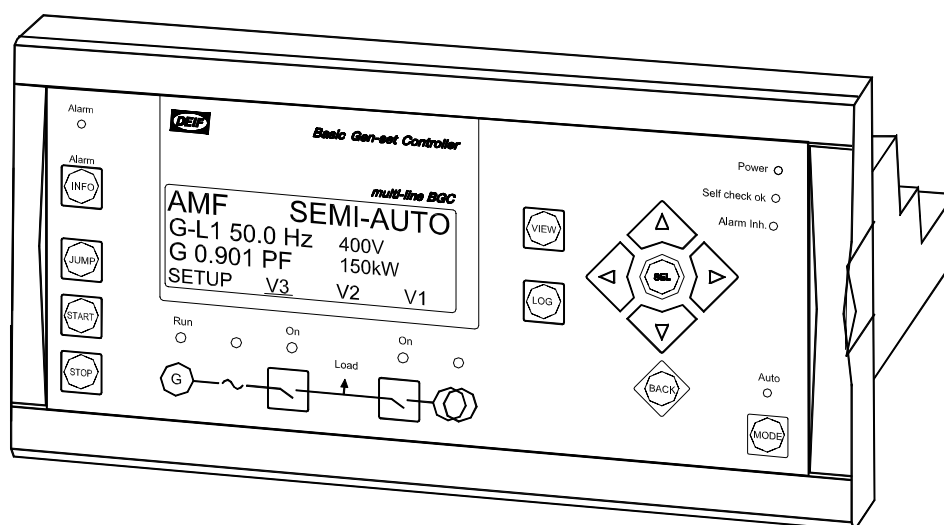
Description of options



Option H5 Serial communication (CAN bus) Basic Gen-set Controller

4189340349C

SW version 2.1X.X



- Description of option
- Functional description
- Parameter list
- Modbus communication



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1. Warnings and legal information

Legal information and responsibility

DEIF takes no responsibility for installation or operation of the generator set. If there is any doubt about how to install or operate the generator set controlled by the unit, the company responsible for the installation or the operation of the set must be contacted.

The units are not to be opened by unauthorised personnel. If opened anyway, the warranty will be lost.

Electrostatic discharge awareness

Sufficient care must be taken to protect the terminals against static discharges during the installation. Once the unit is installed and connected, these precautions are no longer necessary.

Safety issues

Installing the unit implies work with dangerous currents and voltages. Therefore, the installation should only be carried out by authorised personnel who understand the risks involved in working with live electrical equipment.



Be aware of the hazardous live currents and voltages. Do not touch any AC measurement inputs as this could lead to injury or death.

Definitions

Throughout this document a number of notes and warnings will be presented. To ensure that these are noticed, they will be highlighted in order to separate them from the general text.

Notes



The notes provide general information which will be helpful for the reader to bear in mind.

Warning



The warnings indicate a potentially dangerous situation which could result in death, personal injury or damaged equipment, if certain guidelines are not followed.

2. Description of option

Option H5 is a hardware option. Therefore a separate PCB is installed in the slot #2 or slot #3 besides the standard installed hardware.

Function	ANSI no.
Serial engine communication	-

Terminal description

CAN bus communication

The PCB for the engine interface communication module is placed in either slot #2 or slot #3. The actual slot is indicated on the label of the BGC.

Term.		Function	Description
47	55	Can-H	CAN bus card option H5, Engine Interface Communication
48	56	Ground	
49	57	Can-L	
50	58	Can-H	
51	59	Ground	
52	60	Can-L	
53	61	Not used	
54	62	Not used	

Slot #2 used:

Terminals 47 and 50 are internally connected.

Terminals 49 and 52 are internally connected.

Slot #3 used:

Terminals 55 and 58 are internally connected.

Terminals 57 and 60 are internally connected.



The can-H and can-L lines must be connected to the proper can-H and can-L terminals on the engine communication module. Please refer to the installation instructions of the specific type.

Modbus communication

The PCB for the modbus card is placed in either slot #2 or slot #3, if the BGC unit is equipped with option H2 (modbus option).

Term.		Function	Description
47	55	DATA + (A)	Modbus RTU/ASCII, RS485
48	56	GND	
49	57	DATA - (B)	
50	58	Not used	
51	59	DATA + (A)	
52	60	Not used	
53	61	DATA - (B)	
54	62	Not used	

**Slot #2 used:**

Terminals 47 and 51 are internally connected.
Terminals 49 and 53 are internally connected.

Slot #3 used:

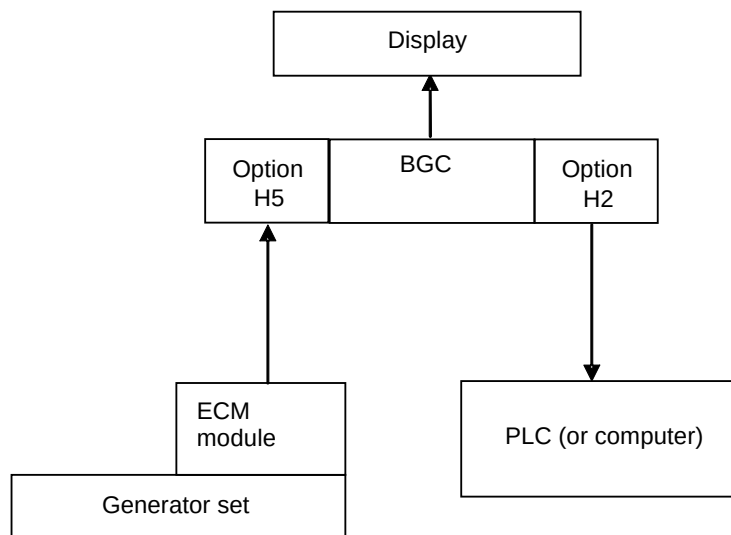
Terminals 55 and 59 are internally connected.
Terminals 57 and 61 are internally connected.



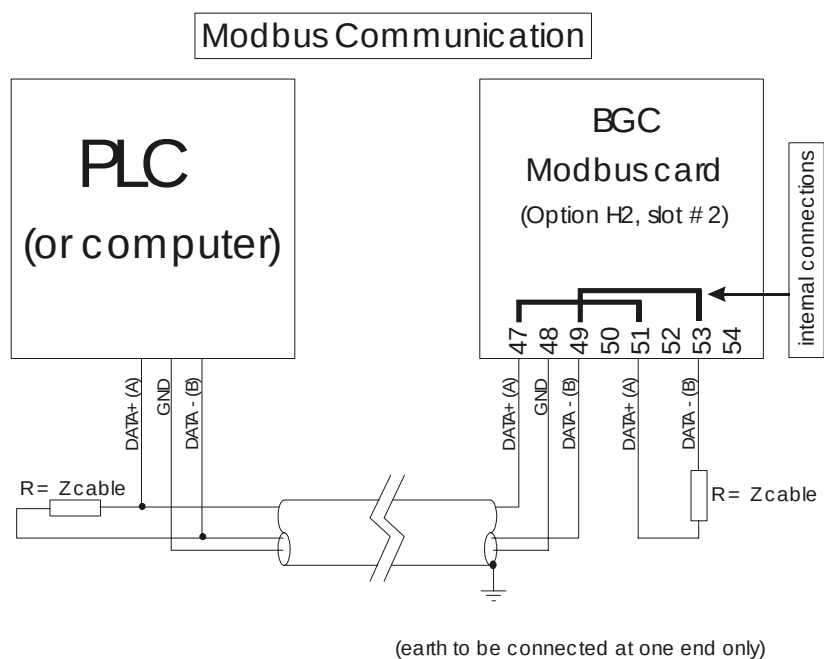
Only modbus can be used to transmit the data to the PLC. Profibus cannot be used.

Wirings

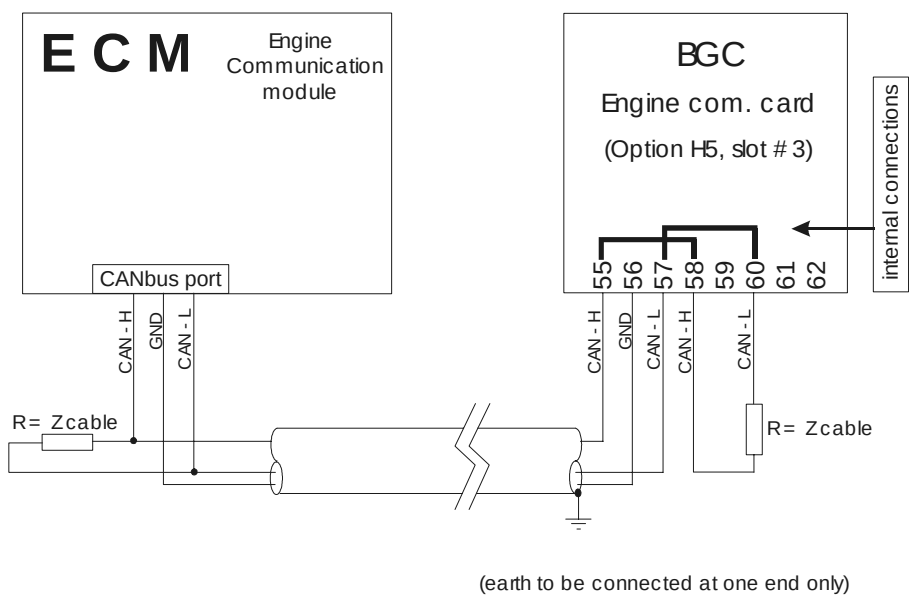
Principle diagram



Connection diagram



Communication between the multi-line 2 unit and the ECM



3. Functional description

This communication extracts information from the Electronic Control Module (ECM) of an engine equipped with an ECM module with CAN bus interface. The values can be used as display values, alarms/shutdown alarms and value to be transmitted through modbus.

Engine types

It is possible to read data from the following engine types:

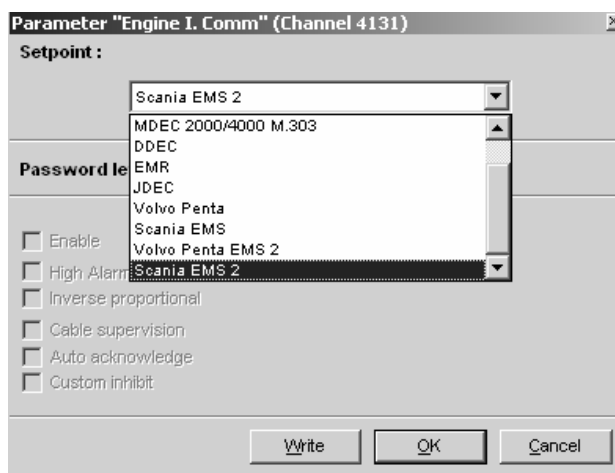
Engine manufacturer	Protocol	Comment
MTU	MDEC communication, module 302 or 303	
MTU	MDEC communication, module M.201 or M.304	Select M.303
Detroit Diesel	DDEC communication	
Deutz	EMR CAN bus communication	
John Deere	JDEC communication	
Volvo	Volvo Penta D12 AUX communication	
Scania	Scania EMS communication	
Volvo Penta EMS 2	Volvo Penta EMS 2	Commands, e.g. start/stop, and settings, e.g. speed, will be written to the EMS
Scania EMS 2	Scania EMS 2	Commands, e.g. start/stop, and settings, e.g. speed, will be written to the EMS

The communication type can be set up through the display or through the PC utility software.

Engine type selection

The proper communication is selected through the utility software in the dialog box shown below. It can also be selected in the display in menu 4131.

If OFF is selected it means that no communication is selected.



MDEC 2000/4000 M.303 is to be chosen when M.201 or M.304 is required.

Communication system

All these protocols are based on a CAN bus communication system. Except for the MDEC communication all of them are based on the J1939. The MDEC protocol is a MTU designed protocol.

The baud rate is fixed by the engine manufacturer at:

MDEC: Series 2000/4000- module 302	MDEC: Series 2000/4000- module 303	DDEC	EMR	JDEC	Volvo Penta EMS 1&2	Scania EMS 1&2
125 kBit/s	125 kBit/s	250 kBit/s	250 kBit/s	250 kBit/s	250 kBit/s	250 kBit/s

EIC unit

The selection of the EIC unit determines whether bar/Celsius or psi/Fahrenheit is used in the display. The selection is made in menu 4140.

The above selection is affecting the shown value on the display and also the data readable by the modbus communication (option H2).

Alarm functions

A number of alarms can be configured in the BGC. Please refer to the Designer's Reference Handbook for information about the configuration.

The following items can be configured to an alarm:

Menu number	Alarm	Comment
4150	Communication error	
4160	EIC shutdown	Binary value, see shutdown table below
4170	Overspeed	Actual RPM
4180/4190	Coolant temperature (2 levels)	Actual temperature
4200/4210	Oil pressure (2 levels)	Actual pressure
4270/4280	Lube oil temp. (2 levels)	Actual lube oil temperature



Please notice that the number of configurable relay outputs is option dependent, if the alarm must activate a relay output.

Warning

Below a list of warnings that can be shown on the display is presented. The warnings will be shown as an alarm in the alarm window. The alarms can be acknowledged from the display but they will be shown until the alarm disappears in the ECM module.

The available warnings depend on the actual communication type:

	Warning list	MDEC: Module 302	MDEC: Module 303	DDEC	EMR	JDEC	Volvo Penta EMS 1&2	Scania EMS 1&2
1	MDEC yellow alarm	X	X	-	-	-	-	-
2	Low oil pressure warning	X	X	-	-	-	-	-
3	High coolant temp. warning	X	X	-	-	-	-	X
4	High intercooler temp.	X	X	-	-	-	-	-
5	Defect coolant level switch	X	X	-	-	-	-	-
6	EMR warning	-	-	-	X	-	-	-
7	JDEC warning	-	-	-	-	X	-	-
8	Oil pressure	-	-	-	-	X	-	-
9	Intake manifold	-	-	-	-	X	-	-
10	Coolant temperature	-	-	-	-	X	-	-
11	Fuel injection pump	-	-	-	-	X	-	-
12	Stop limit	-	-	-	-	-	-	X
13	Charge 61	-	-	-	-	-	-	X
14	EMS warning	-	-	-	-	-	-	X

Shutdown

All shutdown alarms are grouped in the table below. It is possible to configure the menu 4160 'EIC shutdown' in the system setup to put the BGC in a shutdown state and/or to activate relay outputs if necessary.

The shutdown state is present until it disappears in the ECM module.

Below the list of the alarms included in this group, depending on engine communication type:

	Alarm type	MDEC: Module 302	MDEC: Module 303	DDEC	EMR	JDEC	Volvo Penta EMS 1&2	Scania EMS 1&2
1	Overspeed shutdown	X	X	-	X	-	-	-
2	MDEC red alarm	X	X	-	-	-	-	-
3	Low oil pressure shutdown	X	X	-	X	X	-	-
4	Low coolant level shutdown	X	X	-	-	-	-	-
5	MDEC ECU failure	X	X	-	-	-	-	-
6	High coolant temp. shutdown	X	X	-	-	-	-	-
7	High oil temp. shutdown	X	X	-	-	-	-	-
8	High charge air temp. shutdown	X	X	-	-	-	-	-
9	High coolant temp. shutdown	-	-	-	X	X	-	-
10	EMR shutdown	-	-	-	X	-	-	-
11	JDEC shutdown	-	-	-	-	X	-	-
12	Fuel temperature	-	-	-	-	X	-	-
13	Fuel control valve	-	-	-	-	X	-	-
14	ECU failure	-	-	-	-	X	-	-
15	EMS shutdown	-	-	-	-	-	-	X

Engine specific data

Volvo Penta EMS 2

Readable values:

With Volvo Penta EMS 2 the BGC is able to read the following states: Preheat and running.

Writeable values:

With Volvo Penta EMS 2 the BGC is able to write the following commands: Preheat, start, stop, accelerator set point and frequency selection.



The start/stop preheat commands are written by the EMS 2. The relays for these functions can be used for other purposes, if the EMS 2 is used.

Scania EMS 2

With the Scania EMS 2 the BGC is able to read and acknowledge the error log from the engine (KW 2000). These are the faults that can be read by the flash combination of the diagnostics lamp on the EMS 2 (see the engine documentation).



To retrieve the error log in the EMS 2, the Log button on the BGC must be activated for more than 2 seconds.

Flash code	BGC displayed text	Description
11	Overrevving	One or both engine speed sensors have indicated above 3000 RPM
12	Speed sensor 1	Engine sensor 1
13	Speed sensor 2	Engine sensor 2
14	Water T sen.	Engine coolant temperature sensor
15	Char. air T sen	Charge air temperature sensor
16	Char. air P sen	Charge air pressure sensor
17	Oil temp. sen.	Oil temperature sensor
18	Oil pres. sen.	Oil pressure sensor
23	Fault in cor.	Fault in coordinator
25	Throttle pedal	CAN message for fine tune nominal speed out of range
27	Emerg. stop o.r	Engine stop overridden
31	Oil Pres. prot	Oil pressure protection activated
32	Wrong parameter	Wrong parameter setting for defect CAN communication
33	Battery voltage	Battery voltage out of range
37	Emerg. stop cor	Emergency stop switch activated
43	CAN-cir. defect	CAN circuit defect
48	CAN mess. DLN1	CAN message from the coordinator missing or not correct
49	Wrong CAN ver.	Non-matching CAN version in EMS and coordinator
51	Un. inj. cyl. 1	Unit injector cylinder 1
52	Un. inj. cyl. 2	Unit injector cylinder 2
53	Un. inj. cyl. 3	Unit injector cylinder 3
54	Un. inj. cyl. 4	Unit injector cylinder 4
55	Un. inj. cyl. 5	Unit injector cylinder 5
56	Un. inj. cyl. 6	Unit injector cylinder 6
57	Un. inj. cyl. 7	Unit injector cylinder 7
58	Un. inj. cyl. 8	Unit injector cylinder 8
59	Extra ana. inp.	Voltage out of range on extra analogue input pin
61	System shutdown	System shut down incorrectly
66	Coola. l. prot.	Low engine coolant level

86	HW watchdog	Hardware watchdog
87	Fault in RAM	The EMS has detected that the fault code memory is not functioning correctly
89	Seal	The program in the EMS has been altered in a prohibited manner
94	Coola. shut off	Engine coolant temperature/oil pressure shutdown
96	Overheat prot.	Overheat protection activated
99	Fault in TPU	Error in TPU Timer Processor Unit

Scania control

In the parameter 2260 it is possible to configure the droop setting and the initial speed setting. The setting User in parameter 2262 refers to the factory setting in the EMS.

Displayed values

The table shows which values that can be displayed in the view menu. That is in V1, V2 and V3.



For information about the menu structure of the BGC, please see the Designer's Reference Handbook.

The display values corresponding to the engine communication have a description beginning with 'EIC'.

Error messages

The following error messages can occur:

Message	Description
Engine I. value N.A.	The value is not available for the present engine type
Value selected error	The value cannot be read due to sensor error, sub-system or module error
'N.A.'	The available value changes to N.A. due to communication error

Object selection

The view lines can be configured with the available values:

Object	MDEC M.302	MDEC M.303	DDEC	EMR	JDEC	Volvo Penta	Scania
EIC speed	Avail.	Avail.	Avail.	Avail.	Avail.	Avail.	Avail.
EIC coolant temp.	Avail.	Avail.	Avail.	Avail.	Avail.	Avail.	Avail.
EIC oil pressure	Avail.	Avail.	Avail.	Avail.	Avail.	Avail.	Avail.
EIC faults	Avail.	Avail.	N. A.	Avail.	N. A.	N. A.	N. A.
EIC oil temp.	Avail.	Avail.	Avail.	N. A.	N. A.	Avail.	Avail.
EIC fuel temp.	Avail.	Avail.	Avail.	N. A.	Avail.	N. A.	N. A.
EIC boost pressure	N. A.	N. A.	Avail.	N. A.	N. A.	Avail.	Avail.
EIC air inlet temp.	N. A.	N. A.	Avail.	N. A.	N. A.	Avail.	N. A.
EIC coolant level	N. A.	N. A.	Avail.	N. A.	N. A.	N. A.	Avail.
EIC fuel rate	N. A.	N. A.	Avail.	N. A.	Avail.	Avail.	Avail.
EIC charge air pressure	Avail.	Avail.	N. A.	N. A.	N. A.	N. A.	N. A.
EIC charge air temp.	Avail.	Avail.	N. A.	N. A.	Avail.	Avail.	Avail.
EIC d.d. % torque	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC actual % torque	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC acc. pedal pos.	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC % load, c. speed	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	Avail.
EIC air inlet pressure	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC exhaust gas temp.	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC engine hours	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC oil f. diff. press.	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC battery voltage	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC fuel del. press.	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC oil level	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC crankcase press.	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC coolant pressure	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.
EIC water in. fuel	N. A.	N. A.	N. A.	N. A.	N. A.	Avail.	N. A.

Modbus communication

If the modbus option (H2) is installed the data can be transmitted to a PLC or a computer.



Please refer to our option H2 documentation for more information about standard external modbus communication to an external PLC (or computer).



For specific menu numbers please refer to chapter 4.

4. Parameter list



Please refer to the Designer's Reference Handbook for information about the structure of the parameter descriptions.

2260 Scania control

No.	Setting		Min. setting	Second setting	Third setting	Max. setting	Factory setting
2261	Droop	Set point	0.0	-	-	25.0	4.0
2262	Speed	Set point	User	1500 RPM	1800 RPM	Low idle	User

4130 Engine communications

No.	Setting	1st setting	2nd setting	3rd setting	4th setting	5th setting	6th setting	7th setting	8th setting
4131	Engine comm.	OFF	MDEC M.302	MDEC M.303	DDEC	EMR	JDEC	Volvo Penta	Scania

4130 Engine communications

No.	Setting	9th setting	10th setting	Factory setting
4131	Engine comm.	Volvo Penta EMS 2	Scania EMS 2	OFF

4140 EIC unit

No.	Setting		First setting	Second setting	Factory setting
4141	EIC unit	Set point	Bar/Celsius	Psi/Fahrenheit	Bar/Celsius

4150 EI communication error

No.	Setting		Min. setting	Second setting	Max. setting	Factory setting
4151	EI comm. error	Delay	0.0 s		100.0 s	0.0 s
4152	EI comm. error	Relay output A	R0 (none)		R0 (none)	R0 (none)
4153	EI comm. error	Relay output B	R0 (none)		R0 (none)	R0 (none)
4154	EI comm. error	Enable	OFF	ON	RUN	OFF
4155	EI comm. error	Fail class	1 Alarm		6 Trip MB	2 Warning

4160 EIC shutdown

No.	Setting		Min. setting	Second setting	Max./third setting	Factory setting
4161	EIC shutdown	Delay	0.0 s		100.0 s	0.0 s
4162	EIC shutdown	Relay output A	R0 (none)		R0 (none)	R0 (none)
4163	EIC shutdown	Relay output B	R0 (none)		R0 (none)	R0 (none)
4164	EIC shutdown	Enable	OFF	ON	RUN	OFF
4165	EIC shutdown	Fail class	1 Alarm		6 Trip MB	2 Warning

4170 EIC overspeed

No.	Setting		Min. setting	Second setting	Max./third setting	Factory setting
4171	EIC overspeed	Set point	0 RPM		2000 RPM	1600 RPM
4172	EIC overspeed	Delay	0.0 s		100.0 s	2.0 s
4173	EIC overspeed	Relay output A	R0 (none)		R0 (none)	R0 (none)
4174	EIC overspeed	Relay output B	R0 (none)		R0 (none)	R0 (none)
4175	EIC overspeed	Enable	OFF	ON	RUN	OFF
4176	EIC overspeed	Fail class	1 Alarm		6 Trip MB	2 Warning

4180 EIC cooling water temperature 1

No.	Setting		Min. setting	Second setting	Max./third setting	Factory setting
4181	EIC cool w. t. 1	Set point	-40 deg.		210 deg.	100 deg.
4182	EIC cool w. t. 1	Delay	0.0 s		100.0 s	5.0 s
4183	EIC cool w. t. 1	Relay output A	R0 (none)		R0 (none)	R0 (none)
4184	EIC cool w. t. 1	Relay output B	R0 (none)		R0 (none)	R0 (none)
4185	EIC cool w. t. 1	Enable	OFF	ON	RUN	OFF
4186	EIC cool w. t. 1	Fail class	1 Alarm		6 Trip MB	2 Warning

4190 EIC cooling water temperature 2

No.	Setting		Min. setting	Second setting	Max./third setting	Factory setting
4191	EIC cool w. t. 2	Set point	-40 deg.		210 deg.	110 deg.
4192	EIC cool w. t. 2	Delay	0.0 s		100.0 s	5.0 s
4193	EIC cool w. t. 2	Relay output A	R0 (none)		R0 (none)	R0 (none)
4194	EIC cool w. t. 2	Relay output B	R0 (none)		R0 (none)	R0 (none)
4195	EIC cool w. t. 2	Enable	OFF	ON	RUN	OFF
4196	EIC cool w. t. 2	Fail class	1 Alarm		6 Trip MB	2 Warning

4200 EIC oil pressure 1

No.	Setting		Min. setting	Second setting	Max./third setting	Factory setting
4201	EIC oil press. 1	Set point	0.0 bar		10.0 bar	2.0 bar
4202	EIC oil press. 1	Delay	0.0 s		100.0 s	5.0 s
4203	EIC oil press. 1	Relay output A	R0 (none)		R0 (none)	R0 (none)
4204	EIC oil press. 1	Relay output B	R0 (none)		R0 (none)	R0 (none)
4205	EIC oil press. 1	Enable	OFF	ON	RUN	OFF
4206	EIC oil press. 1	Fail class	1 Alarm		6 Trip MB	2 Warning

4210 EIC oil pressure 2

No.	Setting		Min. setting	Second setting	Max./third setting	Factory setting
4211	EIC oil press. 2	Set point	0.0 bar		10.0 bar	1.0 bar
4212	EIC oil press. 2	Delay	0.0 s		100.0 s	5.0 s
4213	EIC oil press. 2	Relay output A	R0 (none)		R0 (none)	R0 (none)
4214	EIC oil press. 2	Relay output B	R0 (none)		R0 (none)	R0 (none)
4215	EIC oil press. 2	Enable	OFF	ON	RUN	OFF
4216	EIC oil press. 2	Fail class	1 Alarm		6 Trip MB	2 Warning

4270 El temp. lube 1

No.	Setting		Min. setting	Second setting	Max./third setting	Factory setting
4271	El temp. lube 1	Set point	0 deg.		100 deg.	50 deg.
4272	El temp. lube 1	Delay	0.0 s		100.0 s	5.0 s
4273	El temp. lube 1	Relay output A	R0 (none)		R0 (none)	R0 (none)
4274	El temp. lube 1	Relay output B	R0 (none)		R0 (none)	R0 (none)
4275	El temp. lube 1	Enable	OFF	ON	RUN	OFF
4276	El temp. lube 1	Fail class	1 Alarm		6 Trip MB	2 Warning

4280 El temp. lube 2

No.	Setting		Min. setting	Second setting	Max./third setting	Factory setting
4281	El temp. lube 2	Set point	0 deg.		100 deg.	40 deg.
4282	El temp. lube 2	Delay	0.0 s		100.0 s	5.0 s
4283	El temp. lube 2	Relay output A	R0 (none)		R0 (none)	R0 (none)
4284	El temp. lube 2	Relay output B	R0 (none)		R0 (none)	R0 (none)
4285	El temp. lube 2	Enable	OFF	ON	RUN	OFF
4286	El temp. lube 2	Fail class	1 Alarm		6 Trip MB	5 Shutdown

5. Modbus communication

This chapter has to be considered as additional information for the option H2 documentation. Please refer to the ECM (Engine Communication Module) user manuals for more information about the ECM protocol technical description and the details of each communication value.

A number of engine data can be transmitted from the engine communication module to the BGC unit. They can be transmitted via option H2 (modbus).

The available values depend on the selected type of engine communication.

The data readable by the modbus communication is converted to the chosen unit in menu 4140.

MDEC series – 2000/4000 – module 302 and 303 – MTU engines

Measurement table (words (2 bytes), read only registers - function code = 03h)

Address	Content	Type
71	Engine Can val.	Engine speed
72	Engine Can val.	Engine coolant temperature
73	Engine Can val.	Engine oil pressure
74	Engine Can val.	Number of actual faults
75	Engine Can val.	Engine oil temperature
76	Engine Can val.	Fuel temperature
77	Engine Can val.	
78	Engine Can val.	
79	Engine Can val.	
80	Engine Can val.	
81	Engine Can val.	Charge air pressure
82	Engine Can val.	Charge air temperature
83	Engine Can val.	

DDEC – Detroit engines

Measurement table (words (2 bytes), read only registers - function code = 03h)

Address	Content	Type
71	Engine Can val.	Engine speed
72	Engine Can val.	Engine coolant temperature
73	Engine Can val.	Engine oil pressure
74	Engine Can val.	
75	Engine Can val.	Engine oil temperature
76	Engine Can val.	Fuel temperature
77	Engine Can val.	Boost pressure
78	Engine Can val.	Air inlet temperature
79	Engine Can val.	Coolant level
80	Engine Can val.	Fuel rate
81	Engine Can val.	
82	Engine Can val.	
83	Engine Can val.	

EMR – Deutz engines

Measurement table (words (2 bytes), read only registers - function code = 03h)

Address	Content	Type
71	Engine Can val.	Engine speed
72	Engine Can val.	Engine coolant temperature
73	Engine Can val.	Engine oil pressure
74	Engine Can val.	Number of actual faults
75	Engine Can val.	
76	Engine Can val.	
77	Engine Can val.	
78	Engine Can val.	
79	Engine Can val.	
80	Engine Can val.	
81	Engine Can val.	
82	Engine Can val.	
83	Engine Can val.	

JDEC – John Deere engines

Measurement table (words (2 bytes), read only registers - function code = 03h)

Address	Content	Type
71	Engine Can val.	Engine speed
72	Engine Can val.	Engine coolant temperature
73	Engine Can val.	Engine oil pressure
74	Engine Can val.	
75	Engine Can val.	
76	Engine Can val.	Fuel temperature
77	Engine Can val.	
78	Engine Can val.	Air inlet temperature
79	Engine Can val.	
80	Engine Can val.	Fuel rate
81	Engine Can val.	
82	Engine Can val.	
83	Engine Can val.	

Volvo Penta engines

Measurement table (words (2 bytes), read only registers - function code = 03h)

Address	Content	Type
71	Engine Can val.	Engine speed
72	Engine Can val.	Engine coolant temperature
73	Engine Can val.	Engine oil pressure
74	Engine Can val.	
75	Engine Can val.	Engine oil temperature
76	Engine Can val.	
77	Engine Can val.	Boost pressure
78	Engine Can val.	Air inlet temperature
79	Engine Can val.	
80	Engine Can val.	Fuel rate
81	Engine Can val.	
82	Engine Can val.	Charge air temperature
83	Engine Can val.	Drivers demands engine – torque percentage
84		
85		
86		
87		
88	Engine Can val.	Actual engine percent torque
89	Engine Can val.	Accelerator pedal position
90	Engine Can val.	Percent load at current speed
91	Engine Can val.	Air inlet pressure
92	Engine Can val.	Exhaust gas temperature
93	Engine Can val.	Engine hours, revolutions, low
94	Engine Can val.	Engine oil filter differential pressure
95	Engine Can val.	Battery voltage, switched
96	Engine Can val.	Fuel delivery pressure
97	Engine Can val.	Engine oil level
98	Engine Can val.	Crankcase pressure
99	Engine Can val.	Coolant pressure
100	Engine Can val.	Water in fuel indicator

Scania engines

Measurement table (words (2 bytes), read only registers - function code = 03h)

Address	Content	Type
71	Engine Can val.	Engine speed
72	Engine Can val.	Engine coolant temperature
73	Engine Can val.	Engine oil pressure
74	Engine Can val.	
75	Engine Can val.	Engine oil temperature
76	Engine Can val.	
77	Engine Can val.	Boost pressure
78	Engine Can val.	
79	Engine Can val.	Coolant level
80	Engine Can val.	Fuel rate
81	Engine Can val.	
82	Engine Can val.	Charge air temperature
83	Engine Can val.	
84		
85		
86		
87		
88	Engine Can val.	
89	Engine Can val.	
90	Engine Can val.	Percent load at current speed
91	Engine Can val.	
92	Engine Can val.	
93	Engine Can val.	
94	Engine Can val.	
95	Engine Can val.	
96	Engine Can val.	
97	Engine Can val.	
98	Engine Can val.	
99	Engine Can val.	
100	Engine Can val.	
102 Bit 0	Engine Can val.	Overrevving
102 Bit 1	Engine Can val.	Speed sensor 1
102 Bit 2	Engine Can val.	Speed sensor 2
102 Bit 3	Engine Can val.	Water T sen.
102 Bit 4	Engine Can val.	Char. air T sen

102 Bit 5	Engine Can val.	Char. air P sen
102 Bit 6	Engine Can val.	Oil temp. sen.
102 Bit 7	Engine Can val.	Oil pres. sen.
102 Bit 8	Engine Can val.	Fault in cor.
102 Bit 9	Engine Can val.	Throttle pedal
102 Bit 10	Engine Can val.	Emerg. stop o.r
102 Bit 11	Engine Can val.	Oil P shut off.
102 Bit 12	Engine Can val.	Wrong parameter
102 Bit 13	Engine Can val.	Battery voltage
102 Bit 14	Engine Can val.	Oil Pres. Prot
102 Bit 15	Engine Can val.	Emerg. stop cor
103 Bit 0	Engine Can val.	CAN-cir. defect
103 Bit 1	Engine Can val.	CAN mess. DLN1
103 Bit 2	Engine Can val.	Wrong CAN ver.
103 Bit 3	Engine Can val.	Un. inj. cyl. 1
103 Bit 4	Engine Can val.	Un. inj. cyl. 2
103 Bit 5	Engine Can val.	Un. inj. cyl. 3
103 Bit 6	Engine Can val.	Un. inj. cyl. 4
103 Bit 7	Engine Can val.	Un. inj. cyl. 5
103 Bit 8	Engine Can val.	Un. inj. cyl. 6
103 Bit 9	Engine Can val.	Un. inj. cyl. 7
103 Bit 10	Engine Can val.	Un. inj. cyl. 8
103 Bit 11	Engine Can val.	Extra ana. inp.
103 Bit 12	Engine Can val.	System shutdown
103 Bit 13	Engine Can val.	Coola. l. prot.
103 Bit 14	Engine Can val.	HW watchdog
103 Bit 15	Engine Can val.	Fault in RAM
104 Bit 0	Engine Can val.	Seal
104 Bit 1	Engine Can val.	Coola. shut off
104 Bit 2	Engine Can val.	Overheat prot.
104 Bit 3	Engine Can val.	Fault in TPU



Resolution hours (98) - approximately 3.75 years supported.

DEIF A/S reserves the right to change any of the above